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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,399	01/29/2004	Chirag Deepak Dalal	VRT0129US	2875
60429	7590	03/24/2006		
CSA LLP			EXAMINER	
4807 SPICEWOOD SPRINGS RD.			KROFCHECK, MICHAEL C	
BLDG. 4, SUITE 201				
AUSTIN, TX 78759			ART UNIT	PAPER NUMBER
			2186	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/767,399	DALAL ET AL.
	Examiner	Art Unit
	Michael Kroccheck	2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 January 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-26 is/are rejected.  
 7) Claim(s) 23 and 24 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 29 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

1. This office action is in response to application 10/767,399 filed on 1/29/2004.
2. Claims 1-26 have been submitted for examination.
3. Claims 1-26 have been examined.

### *Claim Objections*

4. Claims 23 and 24 objected to because of the following informalities:
  - a. The examiner has noticed that claims 23 and 24 are dependent from claim 13, unlike analogous claims 11 and 12, which depend from claim 2, not claim 1. The applicant may have intended to write claims 23 and 24 dependent on claim 14.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 14-24, 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claims 14-24 recites the limitation "The memory medium of claim..." in the first line of each claim. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 26 recites the limitation "The computer readable medium..." in the first line of each claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 1-26 rejected under 35 U.S.C. 102(b) as being anticipated by Bridge, US Patent 6405284.

11. With respect to claim 1 and 13, Brown teaches of a medium for storing computer executable instructions, wherein a method is performed in response to executing the instructions (column 26, line 55-column 27, line 44); the method comprising: in response to a request to perform a set of operations on a plurality of logical volumes, identifying a first storage region of a plurality of storage regions to allocate for a first operation of the set of operations on a first logical volume of the plurality of logical volumes (fig. 11, items 1102, 1104; column 1, lines 35-51; column 19; lines 24-61); and

determining whether a second operation of the set of operations can be performed on a second logical volume of the plurality of logical volumes using a subset of the plurality of storage regions, wherein the subset excludes the first storage region (fig. 11, items 1106; column 1, lines 35-51; column 19; lines 24-61).

12. With respect to claim 2 and 14, Brown teaches of if the second operation cannot be performed using the subset of the plurality of storage regions, identifying a third storage region of the plurality of storage regions to allocate for the first operation (fig. 11; column 1, lines 35-51; column 19; lines 24-61; as when a sufficient mirror partner cannot be found, the primary extent is deallocated and a new primary parity extent is selected at 1102 again), and

determining whether the second operation can be performed using a second subset of the plurality of storage regions, wherein the second subset excludes the third storage region (fig. 11, items 1106; column 1, lines 35-51; column 19; lines 24-61).

13. With respect to claim 3 and 15, Brown teaches of if the first storage region is allocated for the first operation on the first logical volume, de-allocating the first storage region, and including the first storage region in the second subset prior to determining whether the second operation can be performed (fig. 11; column 1, lines 35-51; column 19; lines 24-61; as when a sufficient mirror partner cannot be found, the primary extent is deallocated and a new primary parity extent is selected at 1102 again and the process goes forward as before).

14. With respect to claim 4 and 16, Brown teaches of identifying a respective set of rules to configure each respective logical volume of the plurality of logical volumes prior to identifying the first storage region, wherein the respective set of rules for each respective logical volume is used to identify a respective storage region to allocate for the respective logical volume (fig. 11; column 19, lines 40-44; the round

robin algorithm is used to distribute the location of the extents across the disk drives).

15. With respect to claim 5 and 17, Brown teaches of wherein the determining whether the second operation can be performed comprises examining a second respective set of rules for the second logical volume (fig. 11; column 19, lines 45-54; the other extents must be located in only the full mirror partners).

16. With respect to claim 6 and 18, Brown teaches of determining a respective storage region to allocate for each respective operation of the set of operations by determining whether a remaining operation of the set of operations can be performed using an unallocated subset of the plurality of storage regions, wherein the remaining operation excludes the respective operation, the unallocated subset excludes the respective storage region, and the unallocated subset excludes an allocated subset of the plurality of storage regions wherein each storage region in the allocated subset is allocated to one of the set of operations (fig. 11; column 19, lines 24-61).

17. With respect to claim 7 and 19, Brown teaches of wherein each operation of the set of operations is one type of operation (fig. 11; column 19; lines 24-61; the first operation is a parity extent allocation; the second operation is a data extent allocation, the third operation is a store of management information).

18. With respect to claim 8 and 20, Brown teaches of wherein a first operation of the set of operations is a first type of operation (fig. 11; column 19; lines 24-61; the first operation is a parity extent allocation),

a second operation of the set of operations is a second type of operation (fig. 11; column 19; lines 24-61; the second operation is a data extent allocation), and

the first type and the second type are different (fig. 11; column 19; lines 24-61; the parity extent allocation is different from the data extent allocation as there are requirements that must be fulfilled. Additionally, the store of management information can also be interpreted as a second operation).

19. With respect to claim 9 and 21, Brown teaches of wherein the first storage region conforms to a first intent of the first logical volume (fig. 11; column 19, lines 24-27, lines 40-44; the location for the parity extent is selected based on the round robin algorithm. Doesn't any storage region that is a logical volume conform to the intent of that logical volume. It must satisfy the requirements of the logical volume to be allocated as the logical volume).

20. With respect to claim 10 and 22, Brown teaches of wherein the first intent comprises a first rule used to configure the first storage region to provide the first logical volume (fig. 11; column 19, lines 24-27, lines 40-44; the round robin algorithm (first rule) is used to select the storage location for the parity extent).

21. With respect to claim 11 and 23, Brown teaches of performing the first operation on the first logical volume using the first storage region (fig. 11, items 1102, 1104; column 1, lines 35-51; column 19; lines 24-61).

22. With respect to claim 12 and 24, Brown teaches of wherein one operation of the set of operations is one of the following: creating the first logical volume; growing the second logical volume; and adding a mirror to a third logical volume of the plurality of

logical volumes (fig. 8, 9, 10a, 19, items 802-804, 910, 1004 respectively; column 16, lines 33-47; column 17, lines 27-34; column 17, lines 62-66; column 26, lines 57-65).

23. With respect to claim 25, Brown teaches of a memory medium that stores instructions executable by a computer system, wherein the computer system implements a method in response to executing the instructions (fig. 19; column 26, line 55-column 27, line 44), the method comprising: receiving a request to create first and second logical volumes, wherein the first and second logical volumes are required to have first and second storage structures, respectively, and first and second storage quantities, respectively (fig. 11; column 1, lines 35-51; column 19; lines 24-61; the extents must be indifferent failure groups and in full mirror partners. There must be enough storage space for the extents);

selecting a first collection of physical memory regions; allocating the first collection of physical memory regions to create the first and second logical volumes (fig. 11, items 1102, 1104; column 1, lines 35-51; column 19; lines 24-61; the first disk drive and its full mirror partners);

determining whether the first and second logical volumes have the first and second storage quantities, respectively, and the first and second storage structures, respectively; if the first and second logical volumes do not have the first and second storage quantities, respectively, and the first and second storage structures, respectively, then select a second collection of physical memory regions, wherein the second collection is different from the first collection (fig. 11, items 1106; column 1, lines 35-51; column 19; lines 24-61).

24. With respect to claim 26, Brown teaches of wherein the method further comprises: allocating the second collection of physical memory regions to create new first and second logical volumes; determining whether the new first and second logical volumes have the first and second storage quantities, respectively, and the first and second storage structures, respectively (fig. 11; column 1, lines 35-51; column 19; lines 24-61; as when a sufficient mirror partner cannot be found, the primary extent is deallocated and a new primary parity extent is selected at 1102 again).

### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kroccheck whose telephone number is 571-272-8193. The examiner can normally be reached on Monday - Friday.
27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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